



## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification <sup>7</sup> :C12N 15/54, 9/12, C07K 14/415, C12N  
5/10, C12Q 1/68, 1/48

A3

(11) International Publication Number:

WO 00/36116

(43) International Publication Date:

22 June 2000 (22.06.00)

(21) International Application Number: PCT/US99/29825

(22) International Filing Date: 15 December 1999 (15.12.99)

(30) Priority Data:

60/112,564

16 December 1998 (16.12.98) US

(71) Applicant (for all designated States except US): E.I. DU PONT  
DE NEMOURS AND COMPANY [US/US]; 1007 Market  
Street, Wilmington, DE 19898 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): ALLEN, Stephen, M.  
[US/US]; 2225 Rosewood Drive, Wilmington, DE 19810  
(US). HEPPARD, Elmer, P. [US/US]; 613 Governor Circle,  
Wilmington, DE 19809 (US). MIAO, Guo-Hua [US/US];  
202 Cherry Blossom Place, Hockessin, DE 19707 (US).  
WENG, Zude [CN/US]; 909C Cloister Road, Wilmington,  
DE 19809 (US).(74) Agent: FEULNER, Gregory, J.; E.I. du Pont de Nemours and  
Company, Legal Patent Records Center, 1007 Market Street,  
Wilmington, DE 19898 (US).(81) Designated States: AE, AL, AU, BA, BB, BG, BR, CA, CN,  
CR, CU, CZ, DM, EE, GD, GE, HR, HU, ID, IL, IN, IS,  
JP, KP, KR, LC, LK, LR, LT, LV, MG, MK, MN, MX,  
NO, NZ, PL, RO, SG, SI, SK, SL, TR, TT, UA, US, UZ,  
VN, YU, ZA, ARIPO patent (GH, GM, KE, LS, MW, SD,  
SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG,  
KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY,  
DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT,  
SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW,  
ML, MR, NE, SN, TD, TG).

Published

With international search report.

(88) Date of publication of the international search report:

8 September 2000 (08.09.00)

RECEIVED

SEP 19 2000

PATENT RECORDS  
CENTER

(54) Title: PLANT CATABOLITE REPRESSION GENES

(57) Abstract

This invention relates to an isolated nucleic acid fragment encoding a protein involved in catabolite repression. The invention also relates to the construction of a chimeric gene encoding all or a portion of the protein involved in catabolite repression, in sense or antisense orientation, wherein expression of the chimeric gene results in production of altered levels of the protein involved in catabolite repression in a transformed host cell.

**FOR THE PURPOSES OF INFORMATION ONLY**

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
AM	Armenia	FI	Finland	LT	Lithuania	SK	Slovakia
AT	Austria	FR	France	LU	Luxembourg	SN	Senegal
AU	Australia	GA	Gabon	LV	Latvia	SZ	Swaziland
AZ	Azerbaijan	GB	United Kingdom	MC	Monaco	TD	Chad
BA	Bosnia and Herzegovina	GE	Georgia	MD	Republic of Moldova	TG	Togo
BB	Barbados	GH	Ghana	MG	Madagascar	TJ	Tajikistan
BE	Belgium	GN	Guinea	MK	The former Yugoslav Republic of Macedonia	TM	Turkmenistan
BF	Burkina Faso	GR	Greece			TR	Turkey
BG	Bulgaria	HU	Hungary	ML	Mali	TT	Trinidad and Tobago
BJ	Benin	IE	Ireland	MN	Mongolia	UA	Ukraine
BR	Brazil	IL	Israel	MR	Mauritania	UG	Uganda
BY	Belarus	IS	Iceland	MW	Malawi	US	United States of America
CA	Canada	IT	Italy	MX	Mexico	UZ	Uzbekistan
CF	Central African Republic	JP	Japan	NE	Niger	VN	Viet Nam
CG	Congo	KE	Kenya	NL	Netherlands	YU	Yugoslavia
CH	Switzerland	KG	Kyrgyzstan	NO	Norway	ZW	Zimbabwe
CI	Côte d'Ivoire	KP	Democratic People's Republic of Korea	NZ	New Zealand		
CM	Cameroon			PL	Poland		
CN	China	KR	Republic of Korea	PT	Portugal		
CU	Cuba	KZ	Kazakhstan	RO	Romania		
CZ	Czech Republic	LC	Saint Lucia	RU	Russian Federation		
DE	Germany	LI	Liechtenstein	SD	Sudan		
DK	Denmark	LK	Sri Lanka	SE	Sweden		
EE	Estonia	LR	Liberia	SG	Singapore		

<b>A. CLASSIFICATION OF SUBJECT MATTER</b> IPC 7 C12N15/54 C12N9/12 C07K14/415 C12N5/10 C12Q1/68 C12Q1/48		
According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b>		
Minimum documentation searched (classification system followed by classification symbols) IPC 7 C12N		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practical, search terms used)		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	OSBORNE ET AL.: "Hypothetical 43.0 kD protein" EMBL SEQUENCE DATABASE, 1 July 1997 (1997-07-01), XP002137117 HEIDELBERG DE Ac 004028 the whole document  ----- -/--	1,10,24
<input checked="" type="checkbox"/> Further documents are listed in the continuation of box C. <input type="checkbox"/> Patent family members are listed in annex.		
<b>* Special categories of cited documents :</b>		
<b>"A"</b> document defining the general state of the art which is not considered to be of particular relevance		
<b>"E"</b> earlier document but published on or after the international filing date		
<b>"L"</b> document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)		
<b>"O"</b> document referring to an oral disclosure, use, exhibition or other means		
<b>"P"</b> document published prior to the international filing date but later than the priority date claimed		
<b>"T"</b> later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention		
<b>"X"</b> document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone		
<b>"Y"</b> document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.		
<b>"&amp;"</b> document member of the same patent family		
Date of the actual completion of the international search  22 May 2000		Date of mailing of the international search report  13/06/2000
Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016		Authorized officer  Ceder, O

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	CELENZA ET AL.: "Molecular analysis of the SNF4 gene ...." EMBL SEQUENCE DATABASE, June 1989 (1989-06), XP002137118 HEIDELBERG DE Ac RGBYC3 the whole document	1,10,24
A	-& CELENZA ET AL.: "Molecular analysis of the SNF4 gene ...." MOL CELL BIOL, vol. 9, no. 11, 1989, pages 5045-5054, XP000910655 cited in the application abstract	1,10,24
A	HOTTA ET AL.: "Molecular analysis of a novel protein kinase in maturing rice seed" GENE, vol. 213, 15 June 1998 (1998-06-15), pages 47-54, XP004125002 abstract	5,14,15, 20

## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<b>(51) International Patent Classification <sup>7</sup> :</b> <b>C12N 15/54, 9/12, C07K 14/415, C12N 5/10, C12Q 1/68, 1/48</b>	<b>A2</b>	<b>(11) International Publication Number:</b> <b>WO 00/36116</b> <b>(43) International Publication Date:</b> 22 June 2000 (22.06.00)
<b>(21) International Application Number:</b> PCT/US99/29825 <b>(22) International Filing Date:</b> 15 December 1999 (15.12.99)  <b>(30) Priority Data:</b> 60/112,564 16 December 1998 (16.12.98) US  <b>(71) Applicant (for all designated States except US):</b> E.I. DU PONT DE NEMOURS AND COMPANY [US/US]; 1007 Market Street, Wilmington, DE 19898 (US).  <b>(72) Inventors; and</b> <b>(75) Inventors/Applicants (for US only):</b> ALLEN, Stephen, M. [US/US]; 2225 Rosewood Drive, Wilmington, DE 19810 (US). HEPPARD, Elmer, P. [US/US]; 613 Governor Circle, Wilmington, DE 19809 (US). MIAO, Guo-Hua [US/US]; 202 Cherry Blossom Place, Hockessin, DE 19707 (US). WENG, Zude [CN/US]; 909C Cloister Road, Wilmington, DE 19809 (US).  <b>(74) Agent:</b> FEULNER, Gregory, J.; E.I. du Pont de Nemours and Company, Legal Patent Records Center, 1007 Market Street, Wilmington, DE 19898 (US).		<b>(81) Designated States:</b> AE, AL, AU, BA, BB, BG, BR, CA, CN, CR, CU, CZ, DM, EE, GD, GE, HR, HU, ID, IL, IN, IS, JP, KP, KR, LC, LK, LR, LT, LV, MG, MK, MN, MX, NO, NZ, PL, RO, SG, SI, SK, SL, TR, TT, UA, US, UZ, VN, YU, ZA, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).  <b>Published</b> <i>Without international search report and to be republished upon receipt of that report.</i>
<b>(54) Title:</b> PLANT CATABOLITE REPRESSION GENES		
<b>(57) Abstract</b>  This invention relates to an isolated nucleic acid fragment encoding a protein involved in catabolite repression. The invention also relates to the construction of a chimeric gene encoding all or a portion of the protein involved in catabolite repression, in sense or antisense orientation, wherein expression of the chimeric gene results in production of altered levels of the protein involved in catabolite repression in a transformed host cell.		

**FOR THE PURPOSES OF INFORMATION ONLY**

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
AM	Armenia	FI	Finland	LT	Lithuania	SK	Slovakia
AT	Austria	FR	France	LU	Luxembourg	SN	Senegal
AU	Australia	GA	Gabon	LV	Latvia	SZ	Swaziland
AZ	Azerbaijan	GB	United Kingdom	MC	Monaco	TD	Chad
BA	Bosnia and Herzegovina	GE	Georgia	MD	Republic of Moldova	TG	Togo
BB	Barbados	GH	Ghana	MG	Madagascar	TJ	Tajikistan
BE	Belgium	GN	Guinea	MK	The former Yugoslav Republic of Macedonia	TM	Turkmenistan
BF	Burkina Faso	GR	Greece			TR	Turkey
BG	Bulgaria	HU	Hungary	ML	Mali	TT	Trinidad and Tobago
BJ	Benin	IE	Ireland	MN	Mongolia	UA	Ukraine
BR	Brazil	IL	Israel	MR	Mauritania	UG	Uganda
BY	Belarus	IS	Iceland	MW	Malawi	US	United States of America
CA	Canada	IT	Italy	MX	Mexico	UZ	Uzbekistan
CF	Central African Republic	JP	Japan	NE	Niger	VN	Viet Nam
CG	Congo	KE	Kenya	NL	Netherlands	YU	Yugoslavia
CH	Switzerland	KG	Kyrgyzstan	NO	Norway	ZW	Zimbabwe
CI	Côte d'Ivoire	KP	Democratic People's Republic of Korea	NZ	New Zealand		
CM	Cameroon			PL	Poland		
CN	China	KR	Republic of Korea	PT	Portugal		
CU	Cuba	KZ	Kazakstan	RO	Romania		
CZ	Czech Republic	LC	Saint Lucia	RU	Russian Federation		
DE	Germany	LI	Licchtenstein	SD	Sudan		
DK	Denmark	LK	Sri Lanka	SE	Sweden		
EE	Estonia	LR	Liberia	SG	Singapore		